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NASA THESAURUS SUPPLEMENT

SEPTEMBER 1989

A four part cumulative
supplement to the 1988 edition
of the *NASA Thesaurus*.

National Aeronautics and
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INTRODUCTION

Contents of the Supplement

The *NASA Thesaurus Supplement* is a cumulative update of the 1988 edition of the *NASA Thesaurus, NASA SP-7064*. Supplements are normally published every six months. Users should consult the online thesaurus for complete and up-to-date information.

Part 1 of the *Supplement* updates Volume 1 of the *1988 NASA Thesaurus*, the *Hierarchical Listing*. Complete hierarchies of all new terms are given. Changes in the hierarchies of terms are not included in order to control the size of the *Supplement*. New terms to this supplement are indicated by a bullet.

Part 2 updates Volume 2 of the *1988 NASA Thesaurus*, the *Access Vocabulary*. All new terms are listed in alphabetical order along with USE references (permuted forms of posting terms and other cross-references).

Part 3 is a list of supplemental definitions of *NASA Thesaurus* posting terms, updating Vol. 3 of the *NASA Thesaurus*. New terms are indicated by a bullet.

Part 4 is a list of changes. Users requiring additional information should consult the *1988 NASA Thesaurus*. Comments about the *NASA Thesaurus* and the *Supplement* should be addressed to: Lexicographer, NASA Scientific and Technical Information Facility, P.O. Box 8757, BWI Airport, MD 21240.

Thesaurus Term Definitions

Publication of *NASA Thesaurus* definitions began with *Supplement 1* to the *1985 NASA Thesaurus*. Beginning with the 1988 edition, definitions were published as Volume 3 of the *NASA Thesaurus*. Succeeding *Supplements* will contain only new definitions added after the publication of the 1988 edition.

Definitions are given for most terms added since 1976 as well as for many earlier terms. Definitions of more common or general scientific terms are given a NASA slant if one exists. Certain terms are not defined as a matter of policy: common place names, chemical elements, specific models of computers, and non-technical terms. Other terms lack definitions because the *NASA Thesaurus* predates by a number of years the systematic effort to define terms. Nevertheless, definitions of older terms are continually being added.

The following data are provided for each definition: term in uppercase-lowercase form, definition *per se*, source, and year the term (not the definition) was added to the *NASA Thesaurus*. The NASA History Office is the authority for capitalization in satellite and spacecraft names.

Sources of Definitions

Definitions with no source given were constructed by lexicographers at the NASA Scientific and Technical Information (STI) Facility, who rely on the following sources for their information: experts in the field, literature searches from the NASA STI database, and specialized references.

Definitions come from the following sources:

ASTM. *Compilation of ASTM Standard Definitions*, 6th edition. Philadelphia, PA, ASTM, 1986. Copyright, the American Society for Testing and Materials (ASTM). All rights reserved. Used with the permission of ASTM. Two ASTM sources are distinguished: standards are identified by an alphanumeric designation with no hyphen; committees are identified by an alphanumeric designation with a hyphen. The original definitions appeared in the *Annual Book of ASTM Standards*.

DOE. *Energy Data Base Subject Thesaurus* (DOE/TIC-7000-R7). Oak Ridge, TN, Department of Energy, 1987.

IEEE. *Standard Dictionary of Electrical and Electronics Terms*, Fourth ed., New York, NY, IEEE, 1988.

SP-7. *Dictionary of Technical Terms for Aerospace Use, NASA SP-7*. Washington, DC, NASA, 1965.

In some cases, definitions from these sources have been subjected to minor editorial alterations, for example, to make a definition agree in number with the NASA form of the term.

Retrospective Indexing

Since 1984 all new terms are retrospectively assigned to past database records using a method which combines automated search strategies and manual review.

Record updating usually takes place within three months following the addition of a new term to the *NASA Thesaurus* and covers the period from 1968 to date.

TABLE OF CONTENTS

PART 1

HIERARCHICAL LISTING
A listing of new NASA Thesaurus terms and their hierarchies supplementing the NASA Thesaurus Hierarchical Listing.

PART 2

ACCESS VOCABULARY
A permuted list of new NASA Thesaurus terms supplementing the NASA Thesaurus Access Vocabulary. Includes uppercase-lowercase information.

PART 3

DEFINITIONS
A cumulative list of new definitions of NASA Thesaurus terms. Uppercase-lowercase information is included.

PART 4

CHANGES
A list of new deletions, transfers and changes to the NASA Thesaurus.

NASA THESAURUS SUPPLEMENT

PART 1
HIERARCHICAL LISTING

A

ACOUSTIC COUPLING
GS COUPLING
. **ACOUSTIC COUPLING**
RT ACOUSTIC ATTENUATION
ACOUSTIC EXCITATION
ACOUSTICS
ENERGY TRANSFER
SOUND WAVES
WAVE INTERACTION

ADVANCED VERY HIGH RESOLUTION RADIOMETER
UF AVHRR
GS MEASURING INSTRUMENTS
. RADIATION MEASURING INSTRUMENTS
. . ACTINOMETERS
. . . RADIOMETERS
. . . . INFRARED RADIOMETERS
. . . . . **ADVANCED VERY HIGH RESOLUTION RADIOMETER**
. SATELLITE-BORNE INSTRUMENTS
. . **ADVANCED VERY HIGH RESOLUTION RADIOMETER**
RT NOAA 6 SATELLITE
NOAA 7 SATELLITE
NOAA 8 SATELLITE
REMOTE SENSORS
TIROS N SERIES SATELLITES

ANTIGUA AND BARBUDA
GS LANDFORMS
. ISLANDS
. . WEST INDIES
. . . **ANTIGUA AND BARBUDA**
NATIONS
. **ANTIGUA AND BARBUDA**
RT CARIBBEAN REGION

• **APPLICATION SPECIFIC INTEGRATED CIRCUITS**
UF ASIC
CUSTOM INTEGRATED CIRCUITS
GS CIRCUITS
. INTEGRATED CIRCUITS
. . **APPLICATION SPECIFIC INTEGRATED CIRCUITS**
RT CHIPS (ELECTRONICS)
LARGE SCALE INTEGRATION
VERY LARGE SCALE INTEGRATION

• **ARGENTINE SPACE PROGRAM**
GS PROGRAMS
. SPACE PROGRAMS
. . **ARGENTINE SPACE PROGRAM**
RT ARGENTINA

• **ASIC**
USE APPLICATION SPECIFIC INTEGRATED CIRCUITS

• **ATMOSPHERIC GENERAL CIRCULATION MODELS**
UF GENERAL CIRCULATION MODELS (ATMOSPHERIC)
GS MODELS
. ATMOSPHERIC MODELS
. . **ATMOSPHERIC GENERAL CIRCULATION MODELS**
RT ATMOSPHERIC CIRCULATION
ATMOSPHERIC GENERAL CIRCULATION EXPERIMENT
CLIMATOLOGY
LONG RANGE WEATHER FORECASTING
NUMERICAL WEATHER FORECASTING

• **ATMOSPHERIC SEEING**
USE SEEING (ASTRONOMY)

AUSTRALIAN SPACE PROGRAM
GS PROGRAMS
. SPACE PROGRAMS
. . **AUSTRALIAN SPACE PROGRAM**
RT AUSTRALIA

AVHRR
USE ADVANCED VERY HIGH RESOLUTION RADIOMETER

B

• **BIRKELAND CURRENTS**
GS ELECTRIC CURRENT
. FIELD ALIGNED CURRENTS
. . **BIRKELAND CURRENTS**
. IONOSPHERIC CURRENTS
. . **BIRKELAND CURRENTS**
ELECTRICITY
. ATMOSPHERIC ELECTRICITY
. . IONOSPHERIC CURRENTS
. . . **BIRKELAND CURRENTS**
RT AURORAL ELECTROJETS
AURORAL ZONES
ELECTROJETS
GEOMAGNETISM
IONOSPHERIC DISTURBANCES
MAGNETIC DISTURBANCES
MAGNETIC STORMS

BLAZARS
GS CELESTIAL BODIES
. **BLAZARS**
. . BL LACERTAE OBJECTS
RT ACCRETION DISKS
ACTIVE GALAXIES
DISK GALAXIES
EXTRAGALACTIC RADIO SOURCES
INFRARED ASTRONOMY
QUASARS
RADIO GALAXIES
RADIO SOURCES (ASTRONOMY)
SEYFERT GALAXIES

BRAGG CELLS
GS MODULATORS
. **BRAGG CELLS**
RT ACOUSTO-OPTICS
AMPLITUDE MODULATION
CRYSTAL OPTICS
LIGHT BEAMS
LIGHT MODULATION
PHASE DEMODULATORS
PHASE MODULATION
ULTRASONIC LIGHT MODULATION

• **BROWN DWARF STARS**
GS CELESTIAL BODIES
. STARS
. . **BROWN DWARF STARS**
RT COMPANION STARS
COOL STARS
DWARF STARS
PROTOSTARS
STELLAR EVOLUTION

C

C (PROGRAMMING LANGUAGE)
GS LANGUAGES
. PROGRAMMING LANGUAGES
. . HIGH LEVEL LANGUAGES
. . . **C (PROGRAMMING LANGUAGE)**
RT COMPILERS
COMPUTER PROGRAMMING
EXPERT SYSTEMS

• **CAMBRIAN PERIOD**
GS PALEOZOIC ERA
. **CAMBRIAN PERIOD**
RT GEOCHRONOLOGY
PALEONTOLOGY
PRECAMBRIAN PERIOD

CASSINI MISSION
GS SPACE MISSIONS
. **CASSINI MISSION**
RT EUROPEAN SPACE AGENCY
EUROPEAN SPACE PROGRAMS
INTERNATIONAL COOPERATION
MARINER MARK 2 SPACECRAFT
X MISSIONS
NASA SPACE PROGRAMS
SATURN (PLANET)
SPACE EXPLORATION
SPACE PROBES
TITAN

• **CENOZOIC ERA**
GS **CENOZOIC ERA**
. TERTIARY PERIOD
RT CRETACEOUS-TERTIARY BOUNDARY
EXTINCTION
GEOCHRONOLOGY
PALEONTOLOGY

CENTRAL BULGE (GALAXIES)
USE GALACTIC BULGE

• **CHAOS**
RT BRANCHING (MATHEMATICS)
MATHEMATICAL MODELS
NONLINEAR SYSTEMS
PERIOD DOUBLING
STOCHASTIC PROCESSES
STRANGE ATTRACTORS

COD (CRACKS)
USE CRACK OPENING DISPLACEMENT

COMET RENDEZVOUS ASTEROID FLYBY MISSION
UF CRAF MISSION
GS SPACE MISSIONS
. FLYBY MISSIONS
. . ASTEROID MISSIONS
. . . **COMET RENDEZVOUS ASTEROID FLYBY MISSION**
RT MARINER MARK 2 SPACECRAFT
X MISSIONS
NASA SPACE PROGRAMS

COMETARY MAGNETOSPHERES
RT COMETARY ATMOSPHERES
COMETS
X MAGNETOSPHERES

COMMUTER AIRCRAFT
GS PASSENGER AIRCRAFT
. **COMMUTER AIRCRAFT**
RT AIR TRANSPORTATION
X AIRCRAFT
COMMERCIAL AIRCRAFT
GENERAL AVIATION AIRCRAFT

COMPACT GALAXIES
GS CELESTIAL BODIES
. GALAXIES
. . **COMPACT GALAXIES**
RT GALACTIC STRUCTURE

COMPUTATIONAL GEOMETRY
GS COMPUTATION
. **COMPUTATIONAL GEOMETRY**
GEOMETRY
. **COMPUTATIONAL GEOMETRY**
RT COMPUTER AIDED DESIGN

• **COMPUTER VIRUSES**
RT COMPUTER INFORMATION SECURITY
COMPUTER PROGRAM INTEGRITY
COMPUTER PROGRAMMING
COMPUTER PROGRAMS
COMPUTER SYSTEMS PROGRAMS
SOFTWARE ENGINEERING

CRACK OPENING DISPLACEMENT
UF COD (CRACKS)
GS DISPLACEMENT
. **CRACK OPENING DISPLACEMENT**
RT CRACK PROPAGATION
CRACKING (FRACTURING)
CRACKS
FRACTURE MECHANICS
FRACTURE STRENGTH
FRACTURES (MATERIALS)
FRACTURING
GAPS
NOTCH TESTS
NOTCHES
VOIDS

CRAF MISSION
USE COMET RENDEZVOUS ASTEROID FLYBY MISSION

• **CRETACEOUS PERIOD**
GS MESOZOIC ERA
. **CRETACEOUS PERIOD**
RT CRETACEOUS-TERTIARY BOUNDARY
GEOCHRONOLOGY
PALEONTOLOGY
TERTIARY PERIOD

• **CRETACEOUS-TERTIARY BOUNDARY**
UF K-T BOUNDARY
RT CENOZOIC ERA
CRETACEOUS PERIOD
EXTINCTION
GEOCHRONOLOGY
MESOZOIC ERA
PALEOBIOLOGY
PALEONTOLOGY
TERTIARY PERIOD

• **CUSTOM INTEGRATED CIRCUITS**
USE APPLICATION SPECIFIC INTEGRATED CIRCUITS

CZECHOSLOVAKIAN SPACE PROGRAM
GS PROGRAMS
. SPACE PROGRAMS
. . EUROPEAN SPACE PROGRAMS
. . . **CZECHOSLOVAKIAN SPACE PROGRAM**
RT CZECHOSLOVAKIA

D

DISK OPERATING SYSTEM (DOS)
GS COMPUTER PROGRAMS
. COMPUTER SYSTEMS PROGRAMS
. . OPERATING SYSTEMS (COMPUTERS)
. . . **DISK OPERATING SYSTEM (DOS)**
RT ASSEMBLER ROUTINES
COMPILERS
COMPUTER INFORMATION SECURITY
COMPUTER SYSTEMS DESIGN
NOT DISKS
INPUT/OUTPUT ROUTINES
MAGNETIC DISKS
NOT ROUTINES
NOT SYSTEMS

DJIBOUTI
GS NATIONS
. **DJIBOUTI**
RT AFRICA

E

ECHELLE GRATINGS
GS GRATINGS (SPECTRA)
. **ECHELLE GRATINGS**
RT DIFFRACTION
ECHELETTE GRATINGS
REFLECTION

ELECTROMAGNETIC COUPLING
GS COUPLING
. **ELECTROMAGNETIC COUPLING**
. . MICROWAVE COUPLING
. . OPTICAL COUPLING
RT ELECTROMAGNETIC INTERACTIONS
LASER PLASMA INTERACTIONS
MAGNETOSPHERE-IONOSPHERE COUPLING
PLASMA-ELECTROMAGNETIC INTERACTION

ELECTRON-POSITRON PAIRS
GS PARTICLES
. ELEMENTARY PARTICLES
. . **ELECTRON-POSITRON PAIRS**
RT ANNIHILATION REACTIONS
CHARGED PARTICLES
ELECTRON-POSITRON PLASMAS
ELECTRONS
PAIR PRODUCTION
POSITRON ANNIHILATION
POSITRONS

ELECTRON-POSITRON PLASMAS
GS PARTICLES
. CHARGED PARTICLES
. . ENERGETIC PARTICLES
. . . PLASMAS (PHYSICS)
. . . . **ELECTRON-POSITRON PLASMAS**
RT ELECTRON PLASMA
ELECTRON-POSITRON PAIRS
ELECTRONS
POSITRONS
RELATIVISTIC PLASMAS

• **ENDEAVOUR (ORBITER)**
GS MANNED SPACECRAFT
. SPACE SHUTTLE ORBITERS
. . **ENDEAVOUR (ORBITER)**
REENTRY VEHICLES
. RECOVERABLE SPACECRAFT
. . REUSABLE SPACECRAFT
. . . SPACE SHUTTLE ORBITERS
. . . . **ENDEAVOUR (ORBITER)**
RT CHALLENGER (ORBITER)
NOT SPACECRAFT

F

FIELD ALIGNED CURRENTS
GS ELECTRIC CURRENT
. **FIELD ALIGNED CURRENTS**
. . BIRKELAND CURRENTS
RT AERONOMY
ATMOSPHERIC ELECTRICITY
EARTH IONOSPHERE
EARTH MAGNETOSPHERE
GEOELECTRICITY
GEOMAGNETIC TAIL
GEOMAGNETISM
GEOPHYSICS
IONOSPHERIC CURRENTS
LINES OF FORCE
MAGNETIC FIELD RECONNECTION
PLASMA CURRENTS
TELLURIC CURRENTS
UPPER ATMOSPHERE

• **FLUX TRANSFER EVENTS**
GS MAGNETIC PROPERTIES
. MAGNETOACTIVITY
. . **FLUX TRANSFER EVENTS**
RT AERONOMY

FLUX TRANSFER EVENTS *(CONT.)*
GEOMAGNETISM
INTERPLANETARY MAGNETIC FIELDS
LINES OF FORCE
MAGNETIC EFFECTS
MAGNETIC FIELD CONFIGURATIONS
MAGNETIC FIELD RECONNECTION
MAGNETIC FIELDS
MAGNETIC FLUX
MAGNETOPAUSE
MAGNETOSPHERE-IONOSPHERE COUPLING
SPACE PLASMAS

G

GALACTIC BULGE
UF CENTRAL BULGE (GALAXIES)
NUCLEAR BULGE (GALAXIES)
RT GALACTIC NUCLEI
GALACTIC STRUCTURE
GALAXIES
MILKY WAY GALAXY
SPIRAL GALAXIES
X RAY SOURCES

GALAXY INTERACTION
USE INTERACTING GALAXIES

• **GENERAL CIRCULATION MODELS (ATMOSPHERIC)**
USE ATMOSPHERIC GENERAL CIRCULATION MODELS

• **GRAUPEL**
GS PRECIPITATION (METEOROLOGY)
. **GRAUPEL**
RT CLOUD GLACIATION
CLOUD PHYSICS
HAIL
HAILSTORMS
ICE FORMATION
ICE NUCLEI
SNOW

GRENADA
GS LANDFORMS
. ISLANDS
. . WEST INDIES
. . . **GRENADA**
NATIONS
. **GRENADA**
RT CARIBBEAN REGION

GRID GENERATION (MATHEMATICS)
UF MESH GENERATION (MATHEMATICS)
RT COMPUTATIONAL FLUID DYNAMICS
COMPUTATIONAL GRIDS
COORDINATES
FINITE DIFFERENCE THEORY
FINITE ELEMENT METHOD

H

• **HAIRPIN VORTICES**
USE HORSESHOE VORTICES

HELIOTRONS
GS NUCLEAR REACTORS
. FUSION REACTORS
. . **HELIOTRONS**
RT PLASMA CONTROL
STELLARATORS

HOLES (MECHANICS)
RT CAVITIES
HOLE DISTRIBUTION (MECHANICS)
HOLE GEOMETRY (MECHANICS)
NOT HOLES
PERFORATED PLATES
PERFORATED SHELLS
PERFORATION

HORIZONTAL POLARIZED SHEAR WAVES
USE SH WAVES

HORIZONTALLY POLARIZED SHEAR WAVES
USE SH WAVES

• **HORSESHOE VORTICES**
UF HAIRPIN VORTICES
GS VORTICES
. **HORSESHOE VORTICES**
RT ABRIKOSOV THEORY
FLOW DISTORTION
FLOW GEOMETRY
VORTEX FILAMENTS
VORTEX GENERATORS
VORTEX RINGS
VORTICITY
WAKES
WING TIP VORTICES

• **HUNGARIAN SPACE PROGRAM**
GS PROGRAMS
. SPACE PROGRAMS
. . **HUNGARIAN SPACE PROGRAM**
RT HUNGARY

I

• **ICE CLOUDS**
GS CLOUDS (METEOROLOGY)
. **ICE CLOUDS**
RT CLOUD GLACIATION
CLOUDS
ICE

INTERACTING GALAXIES
UF GALAXY INTERACTION
GS CELESTIAL BODIES
. GALAXIES
. . **INTERACTING GALAXIES**
RT GALACTIC STRUCTURE
Ж INTERACTIONS
STELLAR SYSTEMS

ISRAELI SPACE PROGRAM
GS PROGRAMS
. SPACE PROGRAMS
. . **ISRAELI SPACE PROGRAM**
RT ISRAEL

K

K-EPSILON TURBULENCE MODEL
UF KAPPA-EPSILON TURBULENCE MODEL
GS MODELS
. MATHEMATICAL MODELS
. . TURBULENCE MODELS
. . . **K-EPSILON TURBULENCE MODEL**
RT CLOSURE LAW
COMPUTATIONAL FLUID DYNAMICS
FLOW EQUATIONS
TURBULENT BOUNDARY LAYER
TURBULENT FLOW

• **K-T BOUNDARY**
USE CRETACEOUS-TERTIARY BOUNDARY

KAPPA-EPSILON TURBULENCE MODEL
USE K-EPSILON TURBULENCE MODEL

KNOWLEDGE BASES (ARTIFICIAL INTELLIGENCE)
RT ARTIFICIAL INTELLIGENCE
DATA BASES
EXPERT SYSTEMS
KNOWLEDGE REPRESENTATION

L

LARGE DEPLOYABLE REFLECTOR
UF LDR (TELESCOPE)
GS ARTIFICIAL SATELLITES
. SCIENTIFIC SATELLITES
. . ASTRONOMICAL SATELLITES
. . . **LARGE DEPLOYABLE REFLECTOR**
OBSERVATORIES
. ASTRONOMICAL OBSERVATORIES
. . ASTRONOMICAL SATELLITES

LARGE DEPLOYABLE REFLECTOR-*(CONT.)*
. . . **LARGE DEPLOYABLE REFLECTOR**
TELESCOPES
. INFRARED TELESCOPES
. . **LARGE DEPLOYABLE REFLECTOR**
. REFLECTING TELESCOPES
. . **LARGE DEPLOYABLE REFLECTOR**
. SPACEBORNE TELESCOPES
. . **LARGE DEPLOYABLE REFLECTOR**
RT INFRARED ASTRONOMY
LARGE SPACE STRUCTURES
REFLECTORS
SPACE ERECTABLE STRUCTURES
SUBMILLIMETER WAVES

LASER BEAMS
SN (LIMITED TO THE TRANSMISSION AND INTERACTIONS OF LASER RADIATION; FOR THE QUANTITATIVE AND QUALITATIVE CHARACTERISTICS OF THE RADIATION PRODUCED BY A LASER USE 'LASER OUTPUTS')
UF LASER RADIATION
GS BEAMS (RADIATION)
. LIGHT BEAMS
. . **LASER BEAMS**
COHERENT RADIATION
. COHERENT ELECTROMAGNETIC RADIATION
. . **LASER BEAMS**
ELECTROMAGNETIC RADIATION
. COHERENT ELECTROMAGNETIC RADIATION
. . **LASER BEAMS**
. LIGHT BEAMS
. . **LASER BEAMS**

LASER RADIATION
USE LASER BEAMS

LDR (TELESCOPE)
USE LARGE DEPLOYABLE REFLECTOR

• **LEARNING MACHINES**
USE MACHINE LEARNING

• **LIGHT HELICOPTERS**
GS LIGHT AIRCRAFT
. **LIGHT HELICOPTERS**
. . OH-4 HELICOPTER
. . OH-5 HELICOPTER
. . OH-6 HELICOPTER
. . OH-58 HELICOPTER
V/STOL AIRCRAFT
. ROTARY WING AIRCRAFT
. . HELICOPTERS
. . . **LIGHT HELICOPTERS**
. . . . OH-4 HELICOPTER
. . . . OH-5 HELICOPTER
. . . . OH-6 HELICOPTER
. . . . OH-58 HELICOPTER
RT Ж AIRCRAFT
MILITARY HELICOPTERS
OBSERVATION AIRCRAFT

• **LIQUID OXYGEN HYDROCARBON ROCKET ENGINES**
USE OXYGEN-HYDROCARBON ROCKET ENGINES

• **LOX-HYDROCARBON ROCKET ENGINES**
USE OXYGEN-HYDROCARBON ROCKET ENGINES

LUXEMBOURG SPACE PROGRAM
GS PROGRAMS
. SPACE PROGRAMS
. . EUROPEAN SPACE PROGRAMS
. . . **LUXEMBOURG SPACE PROGRAM**
RT LUXEMBOURG

M

• **MACHINE LEARNING**
UF LEARNING MACHINES
GS AUTOMATIC CONTROL
. ADAPTIVE CONTROL
. . **MACHINE LEARNING**

MACHINE LEARNING-*(CONT.)*
RT ARTIFICIAL INTELLIGENCE
AUTOMATA THEORY
CYBERNETICS
FEEDBACK CONTROL
Ж MACHINERY
SELF ORGANIZING SYSTEMS
TEACHING MACHINES

• **MAN TENDED FREE FLYERS**
UF MTFF (SPACE STATION)
GS MANNED SPACECRAFT
. **MAN TENDED FREE FLYERS**
SPACE PLATFORMS
. **MAN TENDED FREE FLYERS**
STATIONS
. SPACE STATIONS
. . **MAN TENDED FREE FLYERS**
RT COLUMBUS SPACE STATION
EUROPEAN SPACE PROGRAMS
INTRAORBIT TRANSFER VEHICLES
ORBIT TRANSFER VEHICLES
ORBITAL SERVICING
RECOVERABLE SPACECRAFT
SPACE STATION PAYLOADS
SPACEBORNE EXPERIMENTS
SPACECRAFT MODULES

• **MARS ROVER SAMPLE RETURN MISSION**
USE MARS SAMPLE RETURN MISSIONS

• **MARS SAMPLE RETURN MISSIONS**
UF MARS ROVER SAMPLE RETURN MISSION
GS SPACE MISSIONS
. **MARS SAMPLE RETURN MISSIONS**
RT MARS (PLANET)
MARS LANDING
MARS PROBES
MARS SURFACE SAMPLES
NASA SPACE PROGRAMS
ROVING VEHICLES
SAMPLES
SPACE EXPLORATION

• **MASER MATERIALS**
RT LASER MATERIALS
MASERS
Ж MATERIALS

• **MASER PUMPING**
RT LASER PUMPING
MASER OUTPUTS
MASERS
OPTICAL PUMPING
Ж PUMPING

• **MASS DRIVERS**
RT Ж ACCELERATORS
ELECTROMAGNETIC ACCELERATION
ELECTROMAGNETIC PROPULSION
LAUNCHERS
MAGNETIC LEVITATION VEHICLES
MOON-EARTH TRAJECTORIES
PROPULSION
RAILGUN ACCELERATORS
SPACECRAFT PROPULSION

MASSIVELY PARALLEL PROCESSORS
UF MPP (COMPUTERS)
GS DATA PROCESSING EQUIPMENT
. COMPUTERS
. . DIGITAL COMPUTERS
. . . PARALLEL COMPUTERS
. . . . . **MASSIVELY PARALLEL PROCESSORS**
RT ARCHITECTURE (COMPUTERS)
PARALLEL PROCESSING (COMPUTERS)

MATTER-ANTIMATTER PROPULSION
GS PROPULSION
. SPACECRAFT PROPULSION
. . **MATTER-ANTIMATTER PROPULSION**
RT ANNIHILATION REACTIONS
ANTIMATTER
INTERPLANETARY FLIGHT
INTERPLANETARY SPACECRAFT
INTERSTELLAR TRAVEL
NUCLEAR PROPULSION
POSITRON ANNIHILATION
ROCKET ENGINES

MAURITIUS
GS LANDFORMS
. ISLANDS
. . MAURITIUS
NATIONS
. MAURITIUS
RT AFRICA
INDIAN OCEAN

MESH GENERATION (MATHEMATICS)
USE GRID GENERATION (MATHEMATICS)

• **MESOZOIC ERA**
GS MESOZOIC ERA
. CRETACEOUS PERIOD
RT CRETACEOUS-TERTIARY BOUNDARY
GEOCHRONOLOGY
PALEONTOLOGY
PALEOZOIC ERA

MEXICAN SPACE PROGRAM
GS PROGRAMS
. SPACE PROGRAMS
. . MEXICAN SPACE PROGRAM
RT MEXICO

MICROWAVE SIGNATURES
GS SIGNATURES
. SPECTRAL SIGNATURES
. . MICROWAVE SIGNATURES
RT BACKSCATTERING
MICROWAVE EMISSION
MICROWAVE SCATTERING
MICROWAVES
RADAR SIGNATURES
SIGNATURE ANALYSIS

MIXING LAYERS (FLUIDS)
RT ADVECTION
ATMOSPHERIC BOUNDARY LAYER
ATMOSPHERIC STRATIFICATION
BOUNDARY LAYERS
CONVECTION
EKMAN LAYER
JET MIXING FLOW
LAMINAR MIXING
N LAYERS
MIXING
MIXING LENGTH FLOW THEORY
SHEAR LAYERS
TURBULENT BOUNDARY LAYER
TURBULENT MIXING
TWO FLUID MODELS

• **MOONLETS**
GS CELESTIAL BODIES
. MOONLETS
RT JUPITER RINGS
NATURAL SATELLITES
PLANETARY RINGS
SATURN RINGS
URANUS RINGS

MPP (COMPUTERS)
USE MASSIVELY PARALLEL PROCESSORS

• **MTFF (SPACE STATION)**
USE MAN TENDED FREE FLYERS

N

NETHERLANDS SPACE PROGRAM
GS PROGRAMS
. SPACE PROGRAMS
. . EUROPEAN SPACE PROGRAMS
. . . NETHERLANDS SPACE PROGRAM
RT ASTRONOMICAL NETHERLANDS SATELLITE
NETHERLANDS

• **NEW ZEALAND SPACE PROGRAM**
GS PROGRAMS
. SPACE PROGRAMS
. . NEW ZEALAND SPACE PROGRAM
RT NEW ZEALAND

NUCLEAR ASTROPHYSICS
GS ASTROPHYSICS
. NUCLEAR ASTROPHYSICS
NUCLEAR PHYSICS

NUCLEAR ASTROPHYSICS *(CONT.)*
. NUCLEAR ASTROPHYSICS
RT COSMOLOGY
NUCLEAR PARTICLES
STELLAR PHYSICS

NUCLEAR BULGE (GALAXIES)
USE GALACTIC BULGE

O

OPTICAL MATERIALS
RT GLASS
INFRARED WINDOWS
LENSES
N MATERIALS
MIRRORS
OPTICAL FIBERS
WINDOWS (APERTURES)

• **OXYGEN-HYDROCARBON ROCKET ENGINES**
UF LIQUID OXYGEN HYDROCARBON ROCKET ENGINES
LOX/HYDROCARBON ROCKET ENGINES
GS ENGINES
. ROCKET ENGINES
. . LIQUID PROPELLANT ROCKET ENGINES
. . . OXYGEN-HYDROCARBON ROCKET ENGINES
RT BOOSTER ROCKET ENGINES
LIQUID OXYGEN
REUSABLE ROCKET ENGINES
SPACECRAFT PROPULSION

P

• **PALEOZOIC ERA**
GS PALEOZOIC ERA
. CAMBRIAN PERIOD
RT GEOCHRONOLOGY
MESOZOIC ERA
PALEONTOLOGY
PRECAMBRIAN PERIOD

PECULIAR GALAXIES
GS CELESTIAL BODIES
. GALAXIES
. . PECULIAR GALAXIES

PHASE SEPARATION (MATERIALS)
RT BINARY SYSTEMS (MATERIALS)
LIQUID PHASES
MISCIBILITY GAP
PHASE DIAGRAMS
PHASE TRANSFORMATIONS
N SEPARATION
SOLID PHASES
SOLUBILITY

• **PROPELLER NOISE**
GS ELASTIC WAVES
. SOUND WAVES
. . NOISE (SOUND)
. . . AERODYNAMIC NOISE
. . . . PROPELLER NOISE
. . . AIRCRAFT NOISE
. . . . PROPELLER NOISE
RT ACOUSTIC RETROFITTING
AEROACOUSTICS
BLADE SLAP NOISE
ENGINE NOISE
MUFFLERS
NOISE INTENSITY
NOISE MEASUREMENT
NOISE PREDICTION (AIRCRAFT)
NOISE REDUCTION
SOUND FIELDS
SOUND TRANSMISSION

• **PROTEIN CRYSTAL GROWTH**
GS GROWTH
. CRYSTAL GROWTH
. . PROTEIN CRYSTAL GROWTH
RT PROTEIN SYNTHESIS

PROTEIN CRYSTAL GROWTH *(CONT.)*
PROTEINS
SPACE PROCESSING

PULSAR MAGNETOSPHERES
GS STELLAR MAGNETOSPHERES
. PULSAR MAGNETOSPHERES
RT MAGNETIC FIELDS
N MAGNETOSPHERES
PULSARS
STELLAR ATMOSPHERES
STELLAR MAGNETIC FIELDS

Q

QATAR
GS NATIONS
. QATAR
RT ASIA

R

RESONANT TUNNELING
RT BARRIER LAYERS
ELECTRON TUNNELING
NEGATIVE RESISTANCE DEVICES
QUANTUM ELECTRONICS
QUANTUM WELLS
TRANSISTORS
TUNNEL DIODES
N TUNNELING

RHODAMINE
GS DYES
. RHODAMINE
ORGANIC COMPOUNDS
. CYCLIC COMPOUNDS
. . RHODAMINE
RT AMINES
DYE LASERS
FLUORESCENCE
LASER MATERIALS

RIBLETS
GS GROOVES
. V GROOVES
. . RIBLETS
RT BOUNDARY LAYER CONTROL
DRAG REDUCTION
FRICTION DRAG
SHEAR LAYERS
SKIN FRICTION
STRIATION
TURBULENT BOUNDARY LAYER
VORTEX ALLEVIATION

RING GALAXIES
GS CELESTIAL BODIES
. GALAXIES
. . RING GALAXIES

• **ROTATIONAL SPECTRA**
GS SPECTRA
. MOLECULAR SPECTRA
. . ROTATIONAL SPECTRA
RT ABSORPTION SPECTRA
LINE SPECTRA
MOLECULAR EXCITATION
MOLECULAR ROTATION
MOLECULAR SPECTROSCOPY
VIBRATIONAL SPECTRA

• **ROTOR DYNAMICS**
UF ROTORDYNAMICS
RT DYNAMIC CHARACTERISTICS
DYNAMIC RESPONSE
DYNAMIC STABILITY
N DYNAMICS
ROTARY STABILITY
ROTARY WINGS
ROTOR AERODYNAMICS
ROTORS
STRUCTURAL VIBRATION
TURBOMACHINERY

• **ROTORDYNAMICS**
USE ROTOR DYNAMICS

S

SCANNING TUNNELING MICROSCOPY
GS MICROSCOPY
. ELECTRON MICROSCOPY
. . SCANNING TUNNELING MICROSCOPY
RT ELECTRON MICROSCOPES
ELECTRON TUNNELING

• **SEEING (ASTRONOMY)**
UF ATMOSPHERIC SEEING
RT ASTRONOMICAL OBSERVATORIES
ASTRONOMY
ATMOSPHERIC EFFECTS
ATMOSPHERIC OPTICS
ATMOSPHERIC TURBULENCE
EARTH ATMOSPHERE
OPTICAL CORRECTION PROCEDURE
SCINTILLATION
SPACE OBSERVATIONS (FROM EARTH)
TELESCOPES
TURBULENCE EFFECTS
VISUAL OBSERVATION

SEYCHELLES
GS LANDFORMS
. ISLANDS
. . SEYCHELLES
NATIONS
. SEYCHELLES
RT AFRICA
INDIAN OCEAN

SH WAVES
UF HORIZONTAL POLARIZED SHEAR WAVES
HORIZONTALLY POLARIZED SHEAR WAVES
GS ELASTIC WAVES
. S WAVES
. . SH WAVES
RT NONDESTRUCTIVE TESTS
SEISMIC WAVES
TRANSVERSE WAVES
ULTRASONIC TESTS
X WAVES

SHELL STARS
GS CELESTIAL BODIES
. STARS
. . PECULIAR STARS
. . . SHELL STARS
RT B STARS
STELLAR ENVELOPES

SINGLE INPUT SINGLE OUTPUT SYSTEMS
USE SISO (CONTROL SYSTEMS)

• **SIS (SUPERCONDUCTORS)**
UF SUPERCONDUCTOR INSULATOR SUPERCONDUCTORS
GS ELECTRONIC EQUIPMENT
. SOLID STATE DEVICES
. . SIS (SUPERCONDUCTORS)
RT HIGH TEMPERATURE SUPERCONDUCTORS
JOSEPHSON JUNCTIONS
SQUID (DETECTORS)

SISO (CONTROL SYSTEMS)
UF SINGLE INPUT SINGLE OUTPUT SYSTEMS
RT X CONTROL
CONTROL STABILITY
CONTROL SYSTEMS DESIGN
CONTROL THEORY
FEEDBACK CONTROL
X SYSTEMS
SYSTEMS STABILITY

• **SPACECRAFT ENVIRONMENTS**
SN (LIMITED TO SPACECRAFT INTERNAL COMPARTMENTS AND CABINS; FOR SPACECRAFT EXTERNAL ENVIRONMENTS REFER TO 'EXTRATERRESTRIAL ENVIRONMENTS')
GS ENVIRONMENTS
. SPACECRAFT ENVIRONMENTS
RT AEROSPACE MEDICINE
ASTRONAUTS
BIOASTRONAUTICS
CLOSED ECOLOGICAL SYSTEMS
CONTROLLED ATMOSPHERES
COSMONAUTS

SPACECRAFT ENVIRONMENTS *(CONT.)*
COUCHES
ENVIRONMENTAL CONTROL
EXOBIOLOGY
EXTRATERRESTRIAL ENVIRONMENTS
GRAVITATION
INTRAVENICULAR ACTIVITY
LANGLEY COMPLEX COORDINATOR
LIFE SUPPORT SYSTEMS
ROTATING ENVIRONMENTS
SATELLITE TEMPERATURE
THERMAL ENVIRONMENTS
WEIGHTLESSNESS

SPANISH SPACE PROGRAM
GS PROGRAMS
. SPACE PROGRAMS
. . EUROPEAN SPACE PROGRAMS
. . . SPANISH SPACE PROGRAM
RT SPAIN

• **STARQUAKES**
RT GAMMA RAY BURSTS
NEUTRON STARS
PULSARS
STARS
STELLAR ACTIVITY
STELLAR PHYSICS
STELLAR ROTATION
STELLAR STRUCTURE

STELLAR MAGNETOSPHERES
GS STELLAR MAGNETOSPHERES
. PULSAR MAGNETOSPHERES
RT MAGNETIC FIELDS
MAGNETOSPHERES
STELLAR ATMOSPHERES
STELLAR MAGNETIC FIELDS

STONY-IRON METEORITES
GS CELESTIAL BODIES
. METEORITES
. . STONY-IRON METEORITES
RT IRON METEORITES
STONY METEORITES

STRATOSPHERIC WARMING
GS HEATING
. ATMOSPHERIC HEATING
. . STRATOSPHERIC WARMING
RT ANOMALOUS TEMPERATURE ZONES
ATMOSPHERIC HEAT BUDGET
ATMOSPHERIC TEMPERATURE
CLIMATE CHANGE
ISOTHERMAL LAYERS
STRATOSPHERE

• **SUPERCONDUCTING FILMS**
RT X FILMS
SEMICONDUCTING FILMS
SUPERCONDUCTORS
THICK FILMS
THIN FILMS

• **SUPERCONDUCTOR INSULATOR SUPERCONDUCTORS**
USE SIS (SUPERCONDUCTORS)

T

• **TERTIARY PERIOD**
GS CENOZOIC ERA
. TERTIARY PERIOD
RT CRETACEOUS PERIOD
CRETACEOUS-TERTIARY BOUNDARY
GEOCHRONOLOGY
PALEONTOLOGY

THREE DIMENSIONAL MODELS
GS MODELS
. THREE DIMENSIONAL MODELS
RT COMPUTATIONAL GRIDS
COMPUTER AIDED DESIGN
COMPUTERIZED SIMULATION
MATHEMATICAL MODELS
TWO DIMENSIONAL MODELS

TOLLMIEN-SCHLICHTING WAVES
GS ELASTIC WAVES
. TOLLMIEN-SCHLICHTING WAVES

TOLLMIEN-SCHLICHTING WAVES *(CONT.)*
RT BLASIUS FLOW
BOUNDARY LAYER FLOW
BOUNDARY LAYER TRANSITION
LAMINAR FLOW
TURBULENT FLOW

TOMS
USE TOTAL OZONE MAPPING SPECTROMETER

TOTAL OZONE MAPPING SPECTROMETER
UF TOMS
GS MEASURING INSTRUMENTS
. OPTICAL MEASURING INSTRUMENTS
. . PHOTOMETERS
. . . ULTRAVIOLET SPECTROMETERS
. . . . TOTAL OZONE MAPPING SPECTROMETER
. RADIATION MEASURING INSTRUMENTS
. . ACTINOMETERS
. . . ULTRAVIOLET DETECTOR(S)
. . . . ULTRAVIOLET SPECTROMETERS
. . . . . TOTAL OZONE MAPPING SPECTROMETER
. . PHOTOMETERS
. . . ULTRAVIOLET SPECTROMETERS
. . . . TOTAL OZONE MAPPING SPECTROMETER
. SATELLITE-BORNE INSTRUMENTS
. . TOTAL OZONE MAPPING SPECTROMETER
. SPECTROMETERS
. . ULTRAVIOLET SPECTROMETERS
. . . TOTAL OZONE MAPPING SPECTROMETER
OPTICAL EQUIPMENT
. OPTICAL MEASURING INSTRUMENTS
. . PHOTOMETERS
. . . ULTRAVIOLET SPECTROMETERS
. . . . TOTAL OZONE MAPPING SPECTROMETER
RT ANTARCTIC REGIONS
NIMBUS 7 SATELLITE
OZONE DEPLETION
OZONOMETRY

• **TRAPPED VORTICES**
UF VORTEX TRAPS
GS VORTICES
. TRAPPED VORTICES
RT COUNTERFLOW
FLOW DISTRIBUTION
MIXING
ROTATING FLUIDS
ROTATING LIQUIDS
TURBULENT MIXING
TURBULENT WAKES
VORTEX RINGS
VORTICITY

• **TREND ANALYSIS**
RT X ANALYZING
FAILURE ANALYSIS
PERFORMANCE PREDICTION
PREDICTION ANALYSIS TECHNIQUES
RELIABILITY ANALYSIS
STATISTICAL ANALYSIS
TIME SERIES ANALYSIS
TRENDS

TRIPLE STARS
GS CELESTIAL BODIES
. STARS
. . TRIPLE STARS
RT BINARY STARS
COMPANION STARS
STELLAR SYSTEMS
THREE BODY PROBLEM

TURBULENCE MODELS
GS MODELS
. MATHEMATICAL MODELS
. . TURBULENCE MODELS
. . . K-EPSILON TURBULENCE MODEL
RT COMPUTATIONAL FLUID DYNAMICS
FLOW EQUATIONS
MIXING LENGTH FLOW THEORY
TURBULENT BOUNDARY LAYER
TURBULENT FLOW

TWO DIMENSIONAL MODELS
GS MODELS
. TWO DIMENSIONAL MODELS

TWO DIMENSIONAL MODELS-(CONT.)
RT COMPUTERIZED SIMULATION
MATHEMATICAL MODELS
THREE DIMENSIONAL MODELS

U

UNIX (OPERATING SYSTEM)
GS COMPUTER PROGRAMS
. COMPUTER SYSTEMS PROGRAMS
. . OPERATING SYSTEMS (COMPUTERS)
. . . UNIX (OPERATING SYSTEM)

URELITES
GS CELESTIAL BODIES
. METEORITES
. . STONY METEORITES
. . . ACHONDRITES
. . . . URELITES
. . . CARBONACEOUS METEORITES
. . . . URELITES
RT METEORITIC DIAMONDS

V

• VECTOR PROCESSING (COMPUTERS)
GS DATA PROCESSING
. VECTOR PROCESSING (COMPUTERS)
RT MULTIPROCESSING (COMPUTERS)
PARALLEL PROCESSING (COMPUTERS)
PIPELINING (COMPUTERS)

• VECTOR QUANTIZATION
RT CODING
DATA COMPRESSION
DIGITAL TECHNIQUES
IMAGE PROCESSING
VECTORS (MATHEMATICS)
VOICE DATA PROCESSING

• VIDEO TAPES
RT CINEMATOGRAPHY
FILMS
INFORMATION
MAGNETIC TAPES
MOTION PICTURES
PHOTOGRAPHS
PHOTOGRAPHY
TAPES
VISUAL AIDS

• VORTEX TRAPS
USE TRAPPED VORTICES

W

WATER SPLITTING
RT ELECTROLYSIS
HYDROGEN PRODUCTION
SPLITTING

WHISPERING GALLERY MODES
GS MODES
. PROPAGATION MODES
. . WHISPERING GALLERY MODES
RT ACOUSTIC FREQUENCIES
ACOUSTIC PROPAGATION
ELECTROMAGNETIC RADIATION
ELECTROMAGNETIC WAVE TRANSMISSION
WAVE PROPAGATION
WAVELENGTHS

NASA THESAURUS SUPPLEMENT

PART 2
ACCESS VOCABULARY

A

[illegible] coupling

Advanced Very High Resolution Radiometer

aircraft, commuter
USE commuter aircraft

[illegible] currents, field
USE field aligned currents

analysis, trend
USE trend analysis

Antigua and Barbuda

antiproton production, matter
USE matter-antimatter production

application specific integrated circuits

Argentine space program

[illegible] intelligence), knowledge base
USE knowledge bases (artificial intelligence)

ASIC
USE application specific integrated circuits

Asteroid Flyby Mission, Comet Rendezvous
USE Comet Rendezvous Asteroid Flyby Mission

astronomy, analog
USE analog (astronomy)

astrophysics, nuclear
USE nuclear astrophysics

atmospheric), general circulation models
USE atmospheric general circulation models

atmospheric analog
USE analog (astronomy)

atmospheric general circulation model's

Australian space program

AVHRR
USE Advanced Very High Resolution Radiometer

B

Barbuda, Antigua and
USE Antigua and Barbuda

bases (artificial intelligence), knowledge
USE knowledge bases (artificial intelligence)

beams, laser
USE laser beams

Birkeland currents

Blazars

boundary, Cretaceous-Tertiary
USE Cretaceous-Tertiary boundary

boundary, K-T
USE Cretaceous-Tertiary boundary

Bragg cells

brown dwarf stars

bulge, galactic
USE galactic bulge

bulge (galaxies), central
USE galactic bulge

bulge (galaxies), nuclear
USE galactic bulge

C

C (programming language)

Cambrian Period

Cassini mission

cells, Bragg
USE Bragg cells

Cenozoic Era

central bulge (galaxies)
USE galactic bulge

chaos

chips, application specific integrated
USE application specific integrated circuits

circuits, custom integrated
USE application specific integrated circuits

circulation models (atmospheric), general
USE atmospheric general circulation models

circulation models, atmospheric general
USE atmospheric general circulation models

circuits, M
USE [illegible] circuits

COD (cracks)
USE crack opening displacement

Comet Rendezvous Asteroid Flyby Mission

cometary magnetosphere

commuter aircraft

compact galaxies

computational geometry

computer viruses

computers, MPP
USE massively parallel processors

computers, vector processing
USE vector processing (computers)

control systems), SISO
USE SISO (control systems)

coupling, acoustic
USE acoustic coupling

coupling, electromagnetic
USE electromagnetic coupling

crack opening displacement

cracks), COD
USE crack opening displacement

CRAF Mission
USE Comet Rendezvous Asteroid Flyby Mission

Cretaceous Period

Cretaceous-Tertiary boundary

crystal growth, protein
USE protein crystal growth

currents, Birkeland
USE Birkeland currents

currents, field aligned
USE field aligned currents

custom integrated circuits
USE application specific integrated circuits

Czechoslovakian space program

D

Deployable Reflector, Large
USE Large Deployable Reflector

dimensional models, three
USE three dimensional models

dimensional models, two
USE two dimensional models

disk operating system (DOS)

displacement, crack opening
USE crack opening displacement

Djibouti

(DOS), disk operating system
USE disk operating system (DOS)

DOS (operating system), MS
USE disk operating system (DOS)

drivers, mass
USE mass drivers

dwarf stars, brown
USE brown dwarf stars

dynamics, rotor
USE rotor dynamics

E

eclytic geology

electromagnetic coupling

electron-positron pairs

electron-positron plasmas

Endeavour (orbiter)

engines, liquid oxygen hydrocarbon rocket
USE oxygen-hydrocarbon rocket engines

engines, LOX-hydrocarbon rocket
USE oxygen-hydrocarbon rocket engines

engines, oxygen-hydrocarbon rocket
USE oxygen-hydrocarbon rocket engines

environments, spacecraft
USE spacecraft environments

epsilon turbulence model, k-
USE k-epsilon turbulence model

epsilon turbulence model, kappa-
USE k-epsilon turbulence model

Era, Cenozoic
USE Cenozoic Era

Era, Mesozoic
USE Mesozoic Era

Era, Paleozoic
USE Paleozoic Era

events, flux transfer
USE flux transfer events

F

field aligned currents

fires, superconducting
USE superconducting fires

flows, mixing layers
USE mixing layers (fluids)

flux transfer events

Flyby Mission, Comet Rendezvous Asteroid
USE Comet Rendezvous Asteroid Flyby Mission

flyers, main landed free
USE main landed free flyers

free flyers, main landed
USE main landed free flyers

G

galactic bulge

galaxies, central bulge
USE galactic bulge

galaxies, compact
USE compact galaxies

galaxies, interacting
USE interacting galaxies

galaxies, nuclear bulge
USE galactic bulge

galaxies, peculiar
USE peculiar galaxies

galaxies, ring
USE ring galaxies

galaxy interaction
USE interacting galaxies

galaxy modes, whispering
USE whispering galaxy modes

general circulation models (atmospheric)
USE atmospheric general circulation models

general circulation models, climospheric
USE atmospheric general circulation models

generation (mathematics), grid
USE grid generation (mathematics)

generation (mathematics), mesh
USE grid generation (mathematics)

geometry, computational
USE computational geometry

gratings, echelle
USE echelle gratings

groups

Grenada

grid generation (mathematics)

growth, protein crystal
USE protein crystal growth

H

halcyon vortices
USE horseshoe vortices

helicopters, light
USE light helicopters

helotrons

High Resolution Radiometer, Advanced Very
USE Advanced Very High Resolution Radiometer

holes (mechanics)

horizontal shear waves
USE SH waves

horizontally polarized shear waves
USE SH waves

horseshoe vortices

Hungarian space program

hydrocarbon rocket engines, liquid oxygen
USE oxygen-hydrocarbon rocket engines

hydrocarbon rocket engines, LOX-
USE oxygen-hydrocarbon rocket engines

hydrocarbon rocket engines, oxygen-
USE oxygen-hydrocarbon rocket engines

I

ice sheets

input single output systems, single
USE SISO (control systems)

insulator superconductors, superconductor
USE SIS (semiconductors)

integrated circuits, application specific
USE application specific integrated circuits

integrated circuits, custom
USE application specific integrated circuits

intelligence), knowledge bases (artificial
USE knowledge bases (artificial intelligence)

interacting galaxies

interaction, galaxy
USE interacting galaxies

iron meteorites, stony-
USE stony-iron meteorites

Israeli space program

K

k-epsilon turbulence model

K-T boundary
USE Cretaceous-Tertiary boundary

kappa-epsilon turbulence model
USE k-epsilon turbulence model

knowledge bases (artificial intelligence)

L

languages, C (programming
USE C (programming language)

Large Deployable Reflector

laser beams

layers (fluids), mixing
USE mixing layers (fluids)

LDR (telescope)
USE Large Deployable Reflector

learning, machine
USE learning machines

learning machines

learning machines
USE learning machines

light helicopters

liquid oxygen hydrocarbon rocket engines
USE oxygen-hydrocarbon rocket engines

LOX-hydrocarbon rocket engines
USE oxygen-hydrocarbon rocket engines

Luxembourg space program

M

machine learning
USE learning machines

machines, learning
USE learning machines

machines, learning
USE learning machines

magnetospheres, cometary
USE cometary magnetospheres

magnetospheres, pulsar
USE pulsar magnetospheres

magnetospheres, stellar
USE stellar magnetospheres

main landed free flyers

Mapping Spectrometer, Total Ozone
USE Total Ozone Mapping Spectrometer

Mars Rover Sample Return Mission
USE Mars sample return missions

Mars sample return missions

Mason [illegible]

mesas [illegible]

Metis [illegible]

massively parallel processors

materials, maser
USE maser materials

materials, optical
USE optical materials

(materials), phase separation
USE phase separation (materials)

(mathematics), grid generation
USE grid generation (mathematics)

(mathematics), mesh generation
USE grid generation (mathematics)

matter-antimatter propulsion

Mauritius

(mechanics), holes
USE holes (mechanics)

mesh generation (mathematics)
USE grid generation (mathematics)

Mesozoic Era

meteorites, stony-iron
USE stony-iron meteorites

Mexican space program

microscopy, scanning tunneling
USE scanning tunneling microscopy

microwave signatures

mission, Cassini
USE Cassini mission

Mission, Comet Rendezvous Asteroid Flyby
USE Comet Rendezvous Asteroid Flyby Mission

Mission, CRAF
USE Comet Rendezvous Asteroid Flyby Mission

Mission, Mars Rover Sample Return
USE Mars sample return missions

missions, Mars sample return
USE Mars sample return missions

mixing layers (fluids)

model, k-epsilon turbulence
USE k-epsilon turbulence model

model, kappa-epsilon turbulence
USE k-epsilon turbulence model

models (atmospheric), general circulation
USE atmospheric general circulation models

models, atmospheric general circulation
USE atmospheric general circulation models

models, three dimensional
USE three dimensional models

models, turbulence
USE turbulence models

models, two dimensional
USE two dimensional models

modes, whispering gallery
USE whispering gallery modes

moonlets

MPP (computers)
USE massively parallel processors

MS DOS (operating system)
USE disk operating system (DOS)

MTFF (space station)
USE man tended free flyers

N

Netherlands space program

New Zealand space program

noise, propeller
USE propeller noise

nuclear astrophysics

nuclear bulge (galaxies)
USE galactic bulge

O

opening displacement, crack
USE crack opening displacement

operating system (DOS), disk
USE disk operating system (DOS)

(operating system), MS DOS
USE disk operating system (DOS)

(operating system), UNIX
USE UNIX (operating system)

optical materials

(orbiter), Endeavour
USE Endeavour (orbiter)

output systems, single input single
USE SISO (control systems)

oxygen hydrocarbon rocket engines, liquid
USE oxygen-hydrocarbon rocket engines

oxygen-hydrocarbon rocket engines

Ozone Mapping Spectrometer, Total
USE Total Ozone Mapping Spectrometer

P

pairs, electron-positron
USE electron-positron pairs

Paleozoic Era

parallel processors, massively
USE massively parallel processors

peculiar galaxies

Period, Cambrian
USE Cambrian Period

Period, Cretaceous
USE Cretaceous Period

Period, Tertiary
USE Tertiary Period

phase separation (materials)

plasmas, electron-positron
USE electron-positron plasmas

polarized shear waves, horizontally
USE SH waves

positron pairs, electron-
USE electron-positron pairs

positron plasmas, electron-
USE electron-positron plasmas

processing (computers), vector
USE vector processing (computers)

processors, massively parallel
USE massively parallel processors

program, Argentine space
USE Argentine space program

program, Australian space
USE Australian space program

program, Czechoslovakian space
USE Czechoslovakian space program

program, Hungarian space
USE Hungarian space program

program, Israeli space
USE Israeli space program

program, Luxembourg space
USE Luxembourg space program

program, Mexican space
USE Mexican space program

program, Netherlands space
USE Netherlands space program

program, New Zealand space
USE New Zealand space program

program, Spanish space
USE Spanish space program

(programming language), C
USE C (programming language)

propeller noise

propulsion, matter-antimatter
USE matter-antimatter propulsion

protein crystal growth

pulsar magnetospheres

pumping, maser
USE maser pumping

Q

Qatar

quantization, vector
USE vector quantization

R

Radiometer, Advanced Very High Resolution
USE Advanced Very High Resolution Radiometer

Reflector, Large Deployable
USE Large Deployable Reflector

Rendezvous Asteroid Flyby Mission, Comet
USE Comet Rendezvous Asteroid Flyby Mission

Resolution Radiometer, Advanced Very High
USE Advanced Very High Resolution Radiometer

resonance tunneling
USE resonant tunneling

resonant tunneling

Return Mission, Mars Rover Sample
USE Mars sample return missions

return missions, Mars sample
USE Mars sample return missions

rhodamine

ribets

ring galaxies

rocket engines, liquid oxygen hydrocarbon
USE oxygen-hydrocarbon rocket engines

rocket engines, LOX-hydrocarbon

rocket engines, LOX-hydrocarbon
USE oxygen-hydrocarbon rocket engines

rocket engines, oxygen-hydrocarbon
USE oxygen-hydrocarbon rocket engines

rotational spectra

rotor dynamics

rotordynamics
USE rotor dynamics

Rover Sample Return Mission, Mars
USE Mars sample return missions

S

Sample Return Mission, Mars Rover
USE Mars sample return missions

sample return missions, Mars
USE Mars sample return missions

scanning tunneling microscopy

Schlichting waves, Tollmien-
USE Tollmien-Schlichting waves

seeing (astronomy)

seeing, atmospheric
USE seeing (astronomy)

(semiconductors), SIS
USE SIS (semiconductors)

separation (materials), phase
USE phase separation (materials)

Seychelles

SH waves

shear waves, horizontal
USE SH waves

shear waves, horizontally polarized
USE SH waves

shell stars

signatures, microwave
USE microwave signatures

single input single output systems
USE SISO (control systems)

single output systems, single input
USE SISO (control systems)

SIS (semiconductors)

SISO (control systems)

space program, Argentine
USE Argentine space program

space program, Australian
USE Australian space program

space program, Czechoslovakian
USE Czechoslovakian space program

space program, Hungarian
USE Hungarian space program

space program, Israeli
USE Israeli space program

space program, Luxembourg
USE Luxembourg space program

space program, Mexican
USE Mexican space program

space program, Netherlands
USE Netherlands space program

space program, New Zealand
USE New Zealand space program

space program, Spanish
USE Spanish space program

(space station), MTFF
USE man tended free flyers

spacecraft environments

Spanish space program

specific integrated circuits, application
USE application specific integrated circuits

spectra, rotational
USE rotational spectra

Spectrometer, Total Ozone Mapping
USE Total Ozone Mapping Spectrometer

splitting, water
USE water splitting

starquakes

stars, brown dwarf
USE brown dwarf stars

stars, shell
USE shell stars

stars, triple
USE triple stars

station), MTFF (space
USE man tended free flyers

stellar magnetospheres

stony-iron meteorites

stratospheric warming

superconducting films

superconductor insulator superconductors
USE SIS (semiconductors)

superconductors, superconductor insulator
USE SIS (semiconductors)

system (DOS), disk operating
USE disk operating system (DOS)

system), MS DOS (operating
USE disk operating system (DOS)

system), UNIX (operating
USE UNIX (operating system)

systems, single input single output
USE SISO (control systems)

systems), SISO (control
USE SISO (control systems)

T

T boundary, K-
USE Cretaceous-Tertiary boundary

tapes, video
USE video tapes

(telescope), LDR
USE Large Deployable Reflector

tended free flyers, man
USE man tended free flyers

Tertiary boundary, Cretaceous-
USE Cretaceous-Tertiary boundary

Tertiary Period

three dimensional models

Tollmien-Schlichting waves

TOMS
USE Total Ozone Mapping Spectrometer

Total Ozone Mapping Spectrometer

transfer events, flux
USE flux transfer events

trapped vortices

traps, vortex
USE trapped vortices

trend analysis

triple stars

tunneling microscopy, scanning
USE scanning tunneling microscopy

tunneling, resonance
USE resonant tunneling

tunneling, resonant
USE resonant tunneling

turbulence model, k-epsilon
USE k-epsilon turbulence model

turbulence model, kappa-epsilon
USE k-epsilon turbulence model

turbulence models

two dimensional models

U

UNIX (operating system)

uralites

V

vector processing (computers)

vector quantization

Very High Resolution Radiometer, Advanced
USE Advanced Very High Resolution Radiometer

video tapes

viruses, computer
USE computer viruses

vortex traps
USE trapped vortices

vortices, hairpin
USE horseshoe vortices

vortices, horseshoe
USE horseshoe vortices

vortices, trapped
USE trapped vortices

W

warming, stratospheric
USE stratospheric warming

water splitting

waves, horizontal shear
USE SH waves

waves, horizontally polarized shear
USE SH waves

waves, SH
USE SH waves

waves, Tollmien-Schlichting
USE Tollmien-Schlichting waves

whispering gallery modes

Z

Zealand space program, New
USE New Zealand space program

NASA THESAURUS SUPPLEMENT

PART 3
DEFINITIONS

A

AC generators
Generators for the production of alternating-current power. Used for alternating current generators and alternators (generators). *IEEE 1968*

access control
Hardware or software features, operating procedures, or management procedures designed to permit authorized access to a computer system. *IEEE 1980*

• **air data systems**
Sets of aerodynamic and thermodynamic sensors, and a computer which provide flight parameters such as airspeed, static pressure, air temperature and Mach number. *IEEE 1975*

Alfven waves
Use magnetohydrodynamic waves

• **alphanumeric characters**
Characters in a set that contain both letters and digits, but they usually also contain other characters such as punctuation symbols. *IEEE 1968*

alternating current generators
Use AC generators

alternators (generators)
Use AC generators

• **anechoic chambers**
Enclosures especially designed with boundaries that absorb sufficiently well the sound incident thereon to create an essentially field-free condition in the frequency range of interest. *IEEE 1968*

• **angels (radar)**
False radar target echos caused by an atmospheric inhomogeneity, atmospheric refraction, insects, birds, or unknown phenomena. *IEEE 1968*

• **antireflection coatings**
Thin dielectric or metallic films applied to an optical surface to reduce the reflectance and thereby increase the transmittance. Note: The ideal value of the reactive index of a single layered film is the square root of the product of the refractive indices on either side of the film, the ideal optical thickness being one quarter of a wavelength. *IEEE 1973*

• **apogees**
Those orbital points farthest from the earth, when the earth is the center of attraction. *IEEE 1968*

• **audiometry**
The testing and measurement of hearing at various levels. *1968*

B

backfire antennas
Antennas consisting of radiating feeds, reflector elements, and reflecting surfaces such that the antennas function as open resonators, with radiation from the open end of the resonator. *IEEE 1968*

backlobes
Radiation lobes whose axes make angles of approximately 180 degrees with respect to the axes of the major lobes of the antennas. By extension radiation lobes in the half-space opposed to the direction of peak activity. *IEEE 1968*

blazars
Strongly optical polarized active galactic nuclei objects exhibiting BL Lacertae-like and quasar-like characteristics. *1988*

C

central processing units
The units of computing systems that include the circuits controlling the interpretation of instructions and their execution. Used for processors (computers). *IEEE 1969*

COD (cracks)
Use crack opening displacement

cold cathode tubes
Electron tubes containing cold cathodes. *IEEE 1968*

crack opening displacement
The displacement at the mouth of a crack in a material. Used for COD (cracks) *1988*

D

• **discharge tubes**
Use gas discharge tubes

disk operating system (DOS)
A program with which the computer performs such mundane but useful tasks as storing, locating, and retrieving files on disk, reading the keyboard, and issuing display and print information. *1988*

Doppler radar
Radar which utilizes the Doppler effect to determine the radial component of relative radar target velocities or to select targets having particular radial velocities. *IEEE 1968*

E

• electrical conductivity
Use electrical resistivity

• electrical resistivity
A factor such that the conduction-current density is equal to the electric field in the material divided by resistivity. *IEEE 1968*

• electroconductivity
Use electrical resistivity

• energy dissipation
The difference between energy input and output as a result of transfer of energy between two points. Used for energy loss. *IEEE 1968*

• energy loss
Use energy dissipation

• equatorial orbits
Inclined orbits with an inclination of zero degrees. The plane of an equatorial orbit contains the equator of the primary body. *IEEE 1968*

• error correcting codes
Codes in which each telegraph or data signal conforms to specific rules of construction so that departures from this construction in the received signals can be automatically detected, and permits the automatic correction, at the received terminal, of some or all of the errors. Note: Such codes require more signal elements than are necessary to convey the basic information. *IEEE 1974*

• error detection codes
Codes in which each expression conforms to specific rules of construction, so that if certain errors occur in an expression the resulting expression will not conform to the rules of construction and thus the presence of errors is detected. Note: Such codes require more signal elements than are necessary to convey the fundamental information. *IEEE 1968*

F

• FDMA
Use frequency division multiple access

field aligned currents
Electric currents aligned along a magnetic field. *1988*

• finite-state machines
Use Turing machines

• frequency division multiple access
A method of providing multiple acce[illegible] a communication satellite in which the transmissions [illegible] particular earth station occupy a particular assigned frequency band. In the satellite the signals are simultaneously amplified and transposed to a different frequency band and retransmitted. The earth station identifies its receiving channel according to its assigned frequency band in the satellite signal. Used for FDMA. *IEEE 1979*

G

• gas discharge counters
Use gas discharge tubes

• gas discharge tubes
Evacuated enclosures containing a gas at low pressure that permits the passage of electricity through the gas upon application of sufficient voltage. Note: The tubes are usually provided with metal electrodes, but one form permits an electrodeless discharge with induced voltage. Used for discharge tubes and gas discharge counters. *IEEE 1968*

• gyrocompasses
Compasses consisting of a continuously driven Foucault gyroscope whose supporting ring normally confines the spinning axis to a horizontal plane, so that the earth's rotation causes the spinning axis to assume a position in a plane passing through the earth's axis, and thus to point to true north. *IEEE 1968*

H

hydromagnetic waves
Use magnetohydrodynamic waves

I

• impulse generators
Standard reference sources of broadband impulse energy. *IEEE 1968*

• incoherent scattering
The phenomena of generating waves with random variations in phase, amplitude, polarization, and direction of propagation when an incident wave encounters matter. *IEEE 1968*

• indexes (documentation)
Ordered reference lists of contents of a file or document, together with keys or reference notations for identification or location of those contents. *IEEE 1968*

• induction heating
The generation of heat in any conducting material by means of magnetic flux-induced currents. *IEEE 1968*

• induction motors
AC motors in which the primary winding on one member (usually the stator) is connected to the power source and a polyphase secondary winding or a squirrel-cage secondary winding on the other member (usually the rotor) carries induced current. *IEEE 1971*

L

• LED (diodes)
Use light emitting diodes

• light emitting diodes
Pn junction semiconductor devices that emit incoherent optical radiation when biased in the forward direction. Used for LED (diodes). *IEEE 1971*

M

magnetohydrodynamic waves
Low frequency waves in an electrically highly conducting fluid (such as a plasma) permeated by a static magnetic field. The restoring forces of the waves are, in general, the combination of a magnetic tensile stress along the magnetic field lines and the comprehensive stress between the field lines and the fluid pressure. Used for Alfven waves, hydromagnetic waves, and plasma sound waves. *IEEE 1968*

mass drivers
Electromagnetic devices for the linear acceleration of projectiles or payloads. Applications include orbital insertion and transfer, propulsion systems, and hypervelocity accelerators. *1978*

matter-antimatter propulsion
Spacecraft propulsion by use of matter-antimatter annihilation reactions. *1988*

mixing layers (fluids)
Fluid layers in which multicomponent mixing occurs. *1988*

MS DOS (operating system)
Use disk operating system (DOS)

O

• **optimization**
The procedure used in the design of a system to maximize or minimize some performance index. May entail the selection of a component, a principle of operation, or a technique. *IEEE 1968*

• **optoelectronic devices**
Electronic devices combining optic and electric ports. *IEEE 1968*

P

• **parametric amplifiers**
Inverting parametric devices used to amplify a signal without frequency translation from input to output. Used for parametric oscillators and reactance amplifiers. *IEEE 1968*

• **parametric oscillations**
Use parametric amplifiers

pattern recognition
The identification of shapes, forms and configurations by automatic means. *IEEE 1968*

• **payload stations**
The locations in the Space Shuttles' fight decks and cargo bay at which payloads are mounted. *1977*

• **perveance**
The quotient of the space-charge-limited cathode current by the three-halves power of the anode voltage in a diode. Note: Perveance is the constant G appearing in the Child-Langmuir-Schottky equation. *IEEE 1968*

Petri nets
Abstract, formal models of the information flow in systems with discrete sequential or parallel events. The major use has been the modeling of hardware systems and software concepts of computers. *1979*

phase shift keying
The form of phase modulation in which the modulating function shifts the instantaneous phase of the modulated wave among predetermined discrete values. *IEEE 1968*

photocathodes
Electrodes used for obtaining a photoelectric emission when irridated. Used for photoelectric cathodes. *IEEE 1968*

• **photoconductivity**
The conductivity increase exhibited by some nonmetallic materials, resulting from the free carriers generated when photon energy is absorbed in electronic transitions. The rate at which free carriers are generated, the mobility of the carriers, and the length of time they persist in conducting states (their lifetime) are some of the factors that determine the amount of conductivity change. Used for photoresistivity *IEEE 1968*

• **photodiodes**
Diodes designed to produce photocurrent by absorbing light. Photodiodes are used for the conversion of optical power to electrical power. *IEEE 1968*

photoelectric cathodes
Use photocathodes

• **photographic emulsions**
The light-sensitive coatings on photographic film consisting usually of silver halide. *IEEE 1968*

• **photovoltaic effect**
The production of a voltage difference across a pn junction resulting from the absorption of photon energy. The voltage difference is caused by the internal drift of holes and electrons. *IEEE 1968*

• **piezoelectric transducers**
Transducers that depend for their operation on the interaction between electric charge and the deformation of certain materials having piezoelectric properties. Note: Some crystals and specially processed ceramics have piezoelectric properties. *IEEE 1968*

• **plan position indicators**
Display devices on which target blips are shown in plan position, thus forming a map-like display, with radial distance from the center representing range and with the angle of the radius vector representing azimuth angle. Used for PPI (position indicators)

plasma sound waves
Use magnetohydrodynamic waves

• **PPI (position indicators)**
Use plan position indicators

processors (computers)
Use central processing units

R

• **radio propagation**
Use radio signal propagation

• **radio signal propagation**
The transmission of signals by means of radiated electromagnetic waves other than light or heat waves. Used for radio propagation and radio signal propagation. *IEEE 1968*

• **radio sources (astronomy)**
Celestial objects that emit radio waves. *IEEE 1988*

• **radio transmitters**
Devices for producing radio-frequency power, for purposes of radio transmission. *IEEE 1988*

• **reactance amplifiers**
Use parametric amplifiers

• **reinforced plastics**
Plastics with some strength properties greatly superior to those of the base resin, resulting from the presence of high-strength fillers imbedded in the composition. Note: The reinforcing fillers are usually fibers, fabrics, or mats made of fibers. The plastic laminates are the most common and strongest. *IEEE 1988*

• **reluctance**
The ratio of the magnetomotive force to the magnetic flux through any cross section of the magnetic circuit. *IEEE 1988*

• **resistivity**
Use electrical resistivity

riblets
Longitudinal striations forming V-shaped grooves on aerodynamic and hydrodynamic surfaces. The riblet devices act to reduce large-scale disturbances near the boundary layer. These grooves are dimensional on the order of the wall vortices and turbulent dimensions. *1988*

S

secondary radar
A radar technique or mode of operation in which the return signals are obtained from a beacon, transponder, or repeater carried by the target, as contrasted with primary radar in which the return signals are obtained by reflection from the target. *IEEE 1988*

stratospheric warming
A temperature rise in the global stratosphere. *1988*

T

• **transconductance**
The real part of the transadmittance. Note: Transconductance is, as most commonly used, the interelectrode transconductance between the control grid and the plate. At low frequencies, transconductance is the slope of the control-grid-to-plate transfer characteristic. *IEEE 1988*

• **trapped vortices**
Air flow in rotary motion but trapped relative to leading edge vortex separation, which increases not only lift but also drag. The trapped vortices result in thrust and reduced drag. Used for vortex traps. *1990*

• **trend analysis**
A management tool for evaluating variation in data with the ultimate objective of forcasting future events based upon an examination of past results. *1989*

• **trigger circuits**
Circuits that have two conditions of stability, with means for passing from one to the other when certain conditions are satisfied, either spontaneously or through application of an external stimulus. *IEEE 1988*

• **Turing machines**
Mathematical models of devices that change their internal states and read from, write on, and move potentially infinite tapes, all in accordance with their present states, thereby constituting models for computerlike behavior. Invented in the 1930's, they are named after their inventor, A.M. Turing. Used for finite-state machines. *IEEE 1988*

V

• **vortex traps**
Use trapped vortices

W

wattmeters
Instruments for measuring the magnitude of the active power in an electric circuit. They are provided with a scale usually graduated in either watts, kilowatts, or megawatts. If the scale is graduated in kilowatts or megawatts, the instruments are usually designated as kilowattmeters or megawattmeters. *IEEE 1988*

whip antennas
Thin flexible monopole antennas. *IEEE 1988*

whispering gallery modes
Electromagnetic (or elastic) waves that differ in frequency by more than an order of magnitude. *1988*

NASA THESAURUS SUPPLEMENT

PART 4
CHANGES

ACCESS CONTROL
Definition replaced by IEEE definition

CHAOS
Scope note deleted

COMMUTER AIRCRAFT
USE GENERAL AVIATION AIRCRAFT
Deleted, term made postable

COMMUTER AIRCRAFT
USE PASSENGER AIRCRAFT
Deleted, term made postable

DOPPLER RADAR
Definition replaced by IEEE definition

LEARNING MACHINES
Transferred to MACHINE LEARNING

MAGNETOHYDRODYNAMIC WAVES
Definition replaced by IEEE definition

MASS DRIVERS (PAYLOAD DELIVERY)
Transferred to MASS DRIVERS

TOLLMIEN-SCHLICHTING WAVES
Transferred to TOLLMIEN-SCHLICHTING WAVES

TRAPPED VORTEXES
Transferred to TRAPPED VORTICES

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16. Abstract

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